

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: T. HOTTA, et al
Serial No.: Not yet assigned
Filed: May 14, 2001
For: DATA PROCESSOR
Group: 2152
Examiner: M. Geckil

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

May 14, 2001

Sir:

The following amendments and remarks are respectfully submitted prior to the Rule 53(b) Continuation Application filed on even date.

IN THE SPECIFICATION

Please insert before the first line of the specification the following:

-- This is a continuation of application Serial No. 07/979,772, filed November 20, 1992; which is a continuation of application Serial No. 07/433,368, filed November 8, 1989, now U.S. Patent No. 5,233,694. --

IN THE CLAIMS

Please cancel claims 1-16 without prejudice or disclaimer of the subject matter thereof.

Please add new claims 17-40 as follows:

-- 17. A data processor comprising:

a register for storing data;

a plurality of arithmetic operation units operable to execute a plurality of instructions stored in a memory in parallel;

a first plurality of signal lines for sending data stored in said register to an arithmetic operation unit;

a second plurality of signal lines for storing data resulting from operation by an arithmetic operation unit in said register; and

a bypass circuit for connecting said first and second plurality of signal lines to use data resulting from operation by said arithmetic operation unit for a next cycle operation, said bypass circuit being controlled by an instruction executed by said plurality of arithmetic operation units.

18. A data processor comprising:

a plurality of registers for storing data;

a plurality of arithmetic operation units operable

for transferring data from an arithmetic operation unit to a register; and

a plurality of switches for connecting said first and second plurality of signal lines to use data resulting from operation by one arithmetic operation unit for operation by another arithmetic operation unit.

23. A data processor comprising:

a register file for storing data; and

a plurality of arithmetic operation units operable to execute operation based on instructions stored in a memory,

wherein said register file has a bypass circuit for transferring data from an output of a first arithmetic operation unit to an input of a second arithmetic operation unit in order that a first operation and a second operation are executed consecutively, and that a result of said first operation is used for said second operation.

24. The data processor according to claim 23, wherein said register file has a plurality of registers.

25. The data processor according to claim 24, wherein said plurality of registers and said plurality of arithmetic operation units are connected with a first plurality of signal lines and a second plurality of signal lines, said first

plurality of signal lines sending data stored in a register to an arithmetic operation unit and said second plurality of signal lines sending data resulting from operation by an arithmetic operation unit to a register, and said bypass circuit comprises switches for connecting said first plurality of signal lines and said second plurality of signal lines.

26. The data processor according to claim 23, wherein said first operation and said second operation are executed by different arithmetic operation units.

27. A data processor comprising:

- a register for storing data;
- a plurality of arithmetic operation units for executing operation based on a plurality of instructions stored in a memory;
- a first plurality of signal lines for sending data stored in said register to said arithmetic operation units;
- a second plurality of signal lines for storing data resulting from operation by said arithmetic operation units to said register; and
- a bypass circuit for transferring data between different arithmetic operation units when instructions executed by said different arithmetic operation units indicate a same register address.

28. A data processor comprising:

- a plurality of registers for storing data;
- a plurality of arithmetic operation units for executing operation based on a plurality of instructions stored in a memory;
- a first plurality of signal lines for sending data stored in said registers to said arithmetic operation units;
- a second plurality of signal lines for storing data resulting from operation by said arithmetic operation units to said registers; and
- a bypass circuit for transferring data between different arithmetic operation units when instructions executed by said different arithmetic operation units indicate a same register address.

29. The data processor according to claim 27, wherein said instructions are consecutive ones to be executed by said different arithmetic operation units.

30. The data processor according to claim 28, wherein said instructions are consecutive ones to be executed by said different arithmetic operation units.

31. A data processor comprising:

- a register for storing data;

a plurality of arithmetic operation units for
executing operation based on a plurality of instructions
stored in a memory;

a first plurality of signal lines for sending data
from said register to an arithmetic operation unit;

a second plurality of signal lines for storing data
resulting from operation by an arithmetic operation unit in
said register; and

a plurality of switches for connecting said first
and second plurality of signal lines to transfer data between
different arithmetic operation units when instructions
executed by said different arithmetic operation units indicate
a same register address.

32. A data processor comprising:

a plurality of registers for storing data;
a plurality of arithmetic operation units for
executing operation based on a plurality of instructions
stored in a memory;

a first plurality of signal lines for sending data
from a register to an arithmetic operation unit;

a second plurality of signal lines for storing data
resulting from operation by an arithmetic operation unit in a
register; and

a plurality of switches for connecting said first and second plurality of signal lines to transfer data between different arithmetic operation units when instructions executed by said different arithmetic operation units indicate a same register address.

33. The data processor according to claim 31, wherein said instructions are consecutive ones to be executed by said different arithmetic operation units.

34. The data processor according to claim 32, wherein said instructions are consecutive ones to be executed by said different arithmetic operation units.

35. A data processor comprising:

- a register for storing data;
- a plurality of arithmetic operation units operable to execute a plurality of instructions stored in a memory in parallel;
- a first group of signal lines for sending data stored in said register to said plurality of arithmetic operation units;
- a second group of signal lines for storing data resulting from operation by said arithmetic operation units to said register; and

a bypass circuit for connecting said first group of signal lines and said second group of signal lines,

wherein data resulting from operation by an arithmetic operation unit is not only stored in said register, but also sent to another arithmetic operation unit through said bypass circuit.

36. A data processor comprising:

a plurality of registers for storing data;

a plurality of arithmetic operation units operable to execute a plurality of instructions stored in a memory in parallel;

a first plurality of signal lines, connected to said registers and said arithmetic operation units, for transferring data from a register to an arithmetic operation unit;

a second plurality of signal lines, connected to said arithmetic operation units and said registers, for transferring data from an arithmetic operation unit to a register; and

a bypass circuit for transferring data from said second plurality of signal lines to said first plurality of signal lines,

wherein storing data resulting from operation by an arithmetic operation unit and transferring the data to another arithmetic operation unit are executed in a same cycle.

37. A data processor comprising:

a plurality of registers;

first and second arithmetic operation units for executing operations based on a plurality of instructions stored in a memory;

first signal lines for transferring data from said registers to said first arithmetic operation unit;

second signal lines for transferring data from said registers to said second arithmetic operation unit;

third signal lines for transferring data from said first arithmetic operation unit to said registers;

fourth signal lines for transferring data from said second arithmetic operation unit to said registers;

a first bypass circuit for transferring data from said third signal lines to said second signal lines; and

a second bypass circuit for transferring data from said fourth signal lines to said first signal lines.

38. The data processor according to claim 35, wherein said bypass circuits comprise switches.

39. The data processor according to claim 36, wherein said bypass circuits comprise switches.

40. The data processor according to claim 37, wherein said bypass circuits comprise switches.--


REMARKS

Entry of the above amendments prior to examination is respectfully requested.

Please charge any shortage in fees due in connection with the filing of this paper, or credit any overpayment of fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (500.28166CX2).

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP



Carl I. Brundidge
Registration No. 29,621

CIB/jdc
(703) 312-6600